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# VICTORIAN ENTOMOLOGIST



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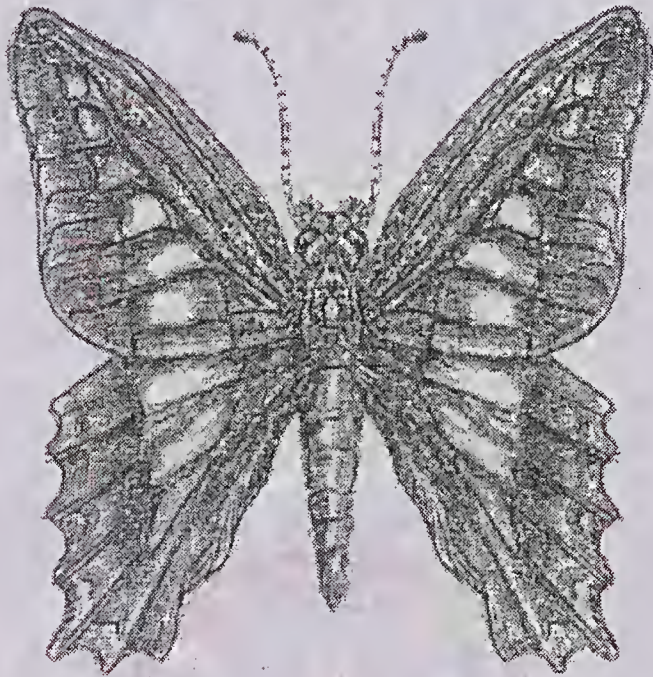
VOL. 29 No. 6

DECEMBER 1999

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*Print Post Approved PP 349018/00058*

*Price: \$ 3.00*



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*News Bulletin of The Entomological Society of Victoria Inc.*

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## THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

### MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

### OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

### MEETINGS

The Society's meetings are held at La Trobe University, 2<sup>nd</sup> Floor, Room 2.29, 215 Franklin Street, Melbourne (Opposite the Queen Victoria Market) Melway reference Map 2F B1 at 8 p.m. on the third Friday of even months, with the possible exception of the December meeting which may be held earlier. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

### SUBSCRIPTIONS

Ordinary Member	\$20.00
Country Member	\$16.00 (Over 100 km from GPO Melbourne)
Student Member	\$12.00
Associate Member	\$ 5.00 (No News Bulletin)

No additional fee is payable for overseas posting by surface mail of the news bulletin. Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

Cover design by Alan Hyman.

Cover illustration of the Blue Triangle butterfly, *Graphium sarpedon* L. by Rhonda Millen.

## MINUTES OF THE GENERAL MEETING, 22 OCTOBER 1999

**Present:** D. Dobrosak, I. Endersby, I. Faithfull, E. & P. Grey, L. Cookson, M. Linger, R. MacPherson, R. McMahon, D. Stewart, J. Tinetti.

**Visitors:** D. Linger, M. Kesavan, C. Meehan, C. Peterson, A. Sedlak

**Apologies:** P. Carwardine, A. Kellehear,

Formal proceedings were held over till the December meeting.

### **Excursion – Tour of CSIRO facilities:**

Laurie Cookson and Jim Creffield hosted a very interesting tour of the CSIRO's Forestry and Forest Products facilities at Clayton North. Laurie and Jim showed those present the collection of wood boring beetles, marine borers, the *Lyctus* beetle culture room, termite insectaries as well as describing the purpose and aims of the facilities.

The Treasurer, Ian Endersby, on behalf of the Society and those present thanked Laurie and Jim for making their time available and the excursion possible.

## MINUTES OF THE COUNCIL MEETING, 19 NOVEMBER 1999

The meeting was not held as several Council members were unavailable due to work commitments

### **For sale**

- Pristine copy of "Biology of Australian Butterflies" by Kitching, Scheermeyer, Jones & Pierce. Monograph of Australian Lepidoptera Vol 6.CSIRO, 1999. (RRP \$150). Will sell for \$105 + \$6.50 postage. Contact Ian Endersby (03) 9435 4781 or [endersby@mira.net](mailto:endersby@mira.net).
- Insect Collection in 1 x 5-drawer cabinet; 1 x 10-drawer cabinet, and 11 separate drawers. All drawers are glass-topped and made of red cedar. Also several storage boxes. Over 2,000 specimens, covering many Orders. \$1,800 the lot, or will separate. Phone Bruce Smith (03) 9439 6042 for inspection.
- Copy of "A guide to the Study of Australian Butterflies" by W.J. Rainbow, Lothian, Melbourne 1907. Please make an offer. Contact Daniel Dobrosak (03) 9749 1476.



# Seasonal Occurrence, Biology and Distribution Records of some Butterflies from the Hunter Region of New South Wales

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## Abstract

Recent drought conditions have diminished the numbers of butterflies observed on the central coast of New South Wales, however a return to above average rains in the last 18 months, appears to have brought about a limited improvement. Biological interactions and biological notes are recorded here for the more common species in the Newcastle (Hunter Valley) region, including those of *Trapezites phigalia*, *Toxidia peron*, *Ocybadistes hypomeloma*, *Suniana sunias* (Hesperiidae), *Argynnis cyrila* (Nymphalidae), and for species of *Paralucia* (Lycaenidae).

## Introduction

Perhaps the most destructive 'natural' event to population density (and even biodiversity) of butterflies found on the central coast and Hunter Valley has been the recent 5-year drought. The effects have been catastrophic for some, such as species of *Jalmenus* (Lycaenidae) that have diurnal-feeding larvae that require young green foliage. Even those butterflies that feed on more drought-resistant plants such as *Trapezites* skippers were affected with a noticeable reduction in numbers. *Trapezites iacchoides* Waterhouse appears to have been eliminated from Yarramalong, although some clearing of bushlands and bush fires may have contributed. The effects seemed less drastic in the higher montane areas of the Barrington Ranges, which presumably received a slightly more regular rainfall.

Wet conditions during the last two seasons, has seen a general recovery. Bush fires, that followed the drought, produced fresh green growth. Steady soaking and consistent rains at the end of last year brought a return of the more common species. However, it is expected to take some time before a full recovery is achieved, especially for univoltine local species of Hesperiidae, Satyrinae and Lycaenidae.

Few progressive plans seem to exist towards the retaining of the broad range of habitats unique to the Hunter Valley. Destructive land-clearing projects continue at an alarming rate. Development has extended the isolation of natural woodlands and heaths and this is also likely to effect the return of butterfly numbers, and/or the diversity of species.

## Observations

*Trapezites phigalia* (Hewitson). This skipper butterfly is distributed widely in the Hunter Valley especially along the coastline. However it is confined locally to areas of dune-heath and mixed open sandy woodland, the larvae feeding on a few small species of *Lomandra*. It flies from late September to late October, both on the coast and to 500m; but curiously a population at about 300m near Kurri Kurri (Dogtrap Range) flies at least two weeks earlier than other populations. Females of the 'Dog-trap' population oviposit on a very small, fine-leaved (unidentified) *Lomandra*, the egg (1mm diam.) being broader than the leaf-blade.

*Toxidia peron* (Latreille). In a previous article (Atkins, 1989) I recorded a very abrupt courtship for this skipper. Mating of the Trapezitinae skippers is not often observed but I can record another recent interaction for this skipper. At Catherine Hill Bay (11.30 am EST) a paired couple of *T. peron* were disturbed from a bush-lined walking track. The female flew (with attached male hanging prone) a few metres away, followed by another male. When settled the second male continued to 'attack' the couple, attempting unsuccessfully, to copulate with the female. Finally, after three attempts, the intruding male flew away. The mating continued for five minutes before I eventually intervened, capturing the couple in a container. Ten minutes later the pair had separated.

*Ocybadistes hypomeloma* Lower. This bi-voltine grass-dart, survived the drought quite well, appearing locally common last spring and autumn. Like the satyrid *Hypocysta adiante* (Hübner) (with which it flies), the skipper is closely associated with Kangaroo grass *Themeda triandra*. It appears that in the Hunter region at least, this grass is the principle, if not sole larval foodplant of both butterflies. Previously I gave a brief life history of *O. hypomeloma* (Atkins, 1990), and since then I have found numerous larvae and pupal excuviae on this grass in many localities within a 50 km radius of Newcastle. This season I located two pupae in upright tube shelters in the upper part of the tussocks, confirming that the larvae are unlikely to cut their final instar shelters adrift as is the habit of some grass-darts. The pupae were greenish to dark brown and about 15 mm long. A male has since emerged (unusually, in the middle of the night).

*Suniana sunias* (Felder). This small grass-skipper was recorded by Dunn and Dunn (1991) as being distributed as far south as Tea Gardens in the northern shores of Port Stephens. I have previous records of a breeding colony from a little further north in the ranges near Bulladelah (O'Sullivan's Gap). This year, perhaps due to above average rainfall, the species was found commonly on the southern shores of Port Stephens (near Fingal Bay) and south to the southern suburbs of Newcastle (Dudley and Jewells). Unexpectedly, a small colony was found flying around broad-leaved grasses near a remnant Mangrove stand at Carrington in the dock-yards of Newcastle.

*Argynnis cyrila* Waterhouse and Lyell is the only Australian satyrid that flies solely in spring. This unusually rapid-flying butterfly is locally distributed in the woodlands of the Hunter Valley. Males can be found in the morning on many hilltops from August to October, but it is not generally abundant - especially females. Last spring several females were observed in coastal and near-coastal hill country, mainly flying in damp gullies. At Mount Vincent, about 40 km SW of Newcastle, females were relatively common, descending into sunlit grassy areas on the eastern forested slopes between 11 am and noon EST. They alighted with wings spread flat absorbing the sunshine for a minute or more before investigating the damp, dappled shade for suitable grass foodplants. However, the oviposition sites chosen were various litter substrates, including twigs and dead leaves and debris, or even under the leaves of clover. Only one or two of the bright emerald-green, spherical eggs were laid at each site. The random oviposition suggests that several grasses (including introduced species) are utilised. After laying eggs the females returned to the sunning sites, but by noon they had quickly ascended to the *Eucalyptus* canopy. Some eggs were collected and they hatched within 10 days. The first instar larvae were pale greenish-cream, covered lightly with finely clubbed setae, and the larval heads were black. The larva rested beneath grass blades, eating during the day from the edges of a leaf-blade. On the 11th of August this year several males were observed hill-topping on Mt Sugarloaf near Mt Vincent.

*Paralucia aurifer* (Blanchard) is locally confined in the Hunter Valley to small woodland colonies in damp creek banks or slopes and swales of hilly country. It is mainly found near the coast where it is one of the first seasonal butterfly to appear (in early August); a second brood appears in April. The Lycaenid occurs more commonly in montane regions above 1000 m., such as at Nundle in the Upper Hunter region where it appears to be univoltine - from October to February.

Preliminary investigations in the mountains of the Upper Hunter have not produced populations of the rare, univoltine *Paralucia spinifera* Edwards and Common, (so far only recorded from the Blue Mountain region), which shares the same montane habitat of *P. aurifer*, although the former species precedes it by more than a month. It is interesting to speculate that if *P. spinifera* occurred on the coast it would fly in July!

Before European settlement *Bursaria spinosa*, [the larval foodplant of *P. spinifera*, *P. aurifer* and the remaining species in the genus, *Paralucia pyrodiscus* (Rosenstock)], covered large areas of bushland in the west of Newcastle. There are still substantial (but fragmented) areas of the plant left and some still harbour colonies of *P. pyrodiscus*. Near the coast this lycaenid tends to frequent slightly disturbed or bush-fired drier country, where generally it has a spring and autumn brood. Occasionally it too is found with *P. aurifer*. Inland *P. pyrodiscus* occurs throughout the warmer months in mixed dry woodland, but I have records of *P. pyrodiscus* from 700m elevation in damp heavily forested mountain slopes to the west of Taree. Two forms are found in the Hunter region, a bright form resembling the Victorian ssp. *lucida* Crosby, and a darker form (males usually with dark brown hindwings), but each colony contains different admixtures of the two forms. One thriving colony was all but destroyed recently by the extending of the East Maitland Shopping Centre, a development that I regret, for it previously offered a perfect location to observe at close range the territorial antics of this, and several other local lycaenid and hesperiid species.

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## A Cautionary Note on the Use of Observation Records for Documenting Butterfly Distributions

M.F. Braby

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02138-2902, USA

It was during one of those perfect summers' days that only Melbourne can boast of when a shrub of Sweet Bursaria, *Bursaria spinosa*, lavishly festooned with flowers that were absolutely drenched with insects, caught my attention. There were no less than a dozen species of butterflies (and in large numbers) and a myriad of beetles and wasps feasting on the rich nectar. Suddenly a small brownish-bronze butterfly descended from the heavens and looked as if it too wanted to join the feeding frenzy. It flew rapidly in front of us, within a few metres, back and forth above the shrub, but it did not settle. Perhaps we disturbed it, for about 5-10 seconds later it rocketed over our heads, spiraled rapidly around a dead branch and then launched itself into space above the canopy. My colleague, Fabian Douglas, and I looked at each other in stunned amazement, disbelief and annoyance. If only we had a net (which I carelessly left in the car parked about 10 m away) we could have caught the specimen for positive identification. The 'beast' had got away!

I am of course referring to an observation made at Eltham, Vic., on the corner of Pitt Street and Eucalyptus Road, directly opposite a small remnant parcel of bushland, now known as the Pauline Toner Eltham Copper Butterfly Reserve, on 5<sup>th</sup> January 1988 during the early afternoon. The small butterfly was undoubtedly a lycaenid, and its size, colour and behaviour suggested most likely an *Acrodipsas*. Indeed, a few hours earlier we had just caught a male *A. brisbanensis* as it was chasing a male *Delias aganippe* on a hilltop nearby at Kangaroo Ground. Based on our extensive knowledge of the local fauna, and through a process of elimination, simple reasoning and deduction we concluded that the specimen seen at Eltham was, most likely, also *A. brisbanensis*. Assuming that our determination was correct the observation represented the first record of the species for the Eltham area and indeed one of very few records for the Melbourne region. We therefore (perhaps prematurely) published the observation in the *Australian Entomologist* (Douglas and Braby 1992).

Probably all of us have, at some stage, made observations of this kind in which there was uncertainty of an identification. In this context, I read with interest an essay by Kelvyn Dunn (Dunn 1999) concerning an observation he made of a small white butterfly at Sandfire Flat in far north-western Australia some 20 years ago whilst on a school safari; the record was subsequently published as *Leptosia nina* (Dunn and Dunn 1991), a species known only from the Kimberley, WA. Dunn's observation, and the example given above, highlight the more general problem of how to deal with such records.

As I see it, there are three philosophical approaches to the problem of observation records in which there is doubt:

1. dismiss the record entirely,
2. make an informed (educated) guess, or
3. collect more evidence.

Most entomologists I know tend to follow the first approach and ignore such records. A few follow the third approach and will only make any significance of the record once more evidence has been acquired through further observations or capture of specimens.

The problem with the second approach, making an informed guess, especially if the record is published or entered into a data-base for general use, is that the reliability of the record and its subsequent acceptability by others depends on some 'level of confidence'. That level of confidence in turn depends on factors such as the field experience (and reliability) of the observer, the prevailing weather conditions at the time of the observation, the duration of the observation, the distance between the subject and observer, and, perhaps most importantly, other species with which the species in question could be confused.

In biological statistics we usually accept a level of confidence of 95%, that is, we accept a 5% chance of the record (or observation) being incorrect. If we accept a record as being correct, but in fact it is wrong, we have committed a Type I Error. On the other hand, if we reject a record in the belief that it is wrong, but in actual fact it is correct, then we have committed a Type II Error. In the case of problems associated with observational records of butterflies Type I Errors are probably more serious than Type II Errors. If a Type II Error is made the information is simply not recorded; this may lead to potential loss of knowledge or delayed growth of knowledge because it demands that the information will only be accepted until confirmed by further observation or collection. However, if a Type I Error is made then we are accepting information which is false and therefore documenting misinformation.

This may all sound rather trivial but I believe that observation records for documenting butterfly distributions in Australia, and the errors associated with them, are going to become increasingly important in the years to come. Heightened conservation awareness and species protection in recent years strongly suggest that society will challenge us to become less tolerant of the 'hunters and killers' collecting specimens, whether it be for scientific purposes or for recreation and leisure. In New England, for example, butterfly collecting is discouraged, and in popular American field guides one can find strong anti-collecting messages such as the following:

"Collectors will find it (the book) useful as well, but though collection is necessary to identify some difficult skipper species, most butterflies can be identified without killing them. The collection of specimens is still important in some instances, but I feel strongly that collected individuals should be useful and should not merely be stockpiled." (Opler 1992, p. xii).

Jeffrey Glassberg's (1993) acclaimed *Butterflies through Binoculars* exemplifies the new trend amongst lepidopterists in New England. The emphasis is on identification and recording butterflies with the aid of binoculars rather than collecting (or 'shooting'!) the specimen with a net, much like the modern birdos, tickers and twitchers throughout the world. Indeed, much of the conservation work in the US involving field surveys of local faunas and monitoring population levels and changes in ranges of particular species, by hoards of amateurs, is achieved through observational studies.

While such an approach might work well in regions where the fauna is very well-known and has relatively few, showy species (although even in north-eastern USA I can not believe that many of the small lycaenids and skippers can be accurately identified without capture, let alone detailed examination of critical structures of dead specimens) I believe that reliance solely on observation records for documenting distributions is unlikely to be successful in a country like Australia, especially in the richer tropical and subtropical latitudes. Many of our butterflies are small, fly very fast and erratically (often high up), and are cryptic when settled: in my



experience the specimens, at the very least, need to be captured in order to make a correct identification. In some cases, positive identification is only possible once the specimen has been killed and then pinned and spread, especially if the specimen is in poor wing condition; in others, dissection and examination of the genitalia is necessary. Imagine trying to identify the females (and males in some cases) of *Candalides helenita*, *C. margarita*, *C. absimilis*, *C. consimilis* and *Philiris diana* without capturing them for closer examination! Even in collections, preserved specimens of these five lycaenids can be very easily confused and some may necessitate dissection.

So what do we do with butterfly observation records in which there is doubt, especially when the record may concern a significant discovery such as a range extension? Obviously the accuracy of the determination rests with the field observer and the acceptance of the record by others lies in some level of confidence in the observer. Clearly we need to minimise errors, especially Type I Errors. Personally, I prefer the third approach (listed above), that is, to collect more evidence and err on the side of caution. As Ted Edwards of CSIRO Entomology once said to me "we just don't know enough about our fauna, it's too easy to be dead wrong, and there are too many other possibilities until you have the specimen in the hand."

## Summary

In this article I have discussed problems associated with observation records in which there is doubt and provided some examples where controversial distributions have been documented in the past. Observation records, whether it be based on field surveys of particular species or of faunal assemblages of specific localities/habitats, are likely to become more important in documenting butterfly distributions and for monitoring changes in geographic ranges. However, while such data collecting methods might work well for a few, relatively large and conspicuous species, it is argued (and recommended) that the majority of species be captured, and in many cases preserved, for correct identification, especially in the Australian tropics and subtropics. In cases where there is doubt it is recommended to ignore such records until more evidence has been obtained through further observations or capture of specimens.

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## **In The Mood: The Musical Portrayal of Insects**

Allan Kellehear, Ph.D.

The world of music and the world of insects are experiences both counter-intuitive and logically connected. They appear contradictory. As I have argued in a past address, when most people think of insects they have poor images of them. Insects are viewed as pests - problems for households, gardeners and farmers. A little reflection upon this initial prejudice enables people to recall the beauty of most butterflies, Christmas or Lady Beetles, or the magical maze of patterns on dragonfly wings. In children's art these views are most apparent in the adult writers and artists contributing to this genre. But few people think of insects in terms of sound, let alone music.

The classical composer Saint-Saëns, for example, when he composed the famous *Carnival of Animals*, wrote pieces for 13 'animals' including 'pianists', 'fossils', and 'People with Long Ears' but, more conventionally, he included other animals such as birds, kangaroos, tortoises, elephants, members of the aquarium, and the famous piece 'The Swan'. Not an insect in sight here. And yet the insect has been an important part of all traditions of music. The *Flight of the Bumble Bee* and the symphony of the *Wasps* in the classical tradition, and many other examples, are evidence that composers have seen fit to employ the insect not only as musical devices but also as motifs for deep reflection and playful distraction.

My examples will be chosen from the different genres to illustrate the importance of insects in the creation of 'mood' - the spiritual or emotional conditions of gaiety, of peace and tranquillity, or of contemplation. Here, as in art, the insect functions to romance. In music though, unlike art, insects are consistently drawn upon for the pure pleasure of the listener. The insect rarely performs critical functions in music. Instead insects are 'muses' - they are employed to bring simple comfort to the listener.

I will begin my brief tour of the musical portrayal of insects by beginning with the use of insect noises as instruments in themselves used in conjunction with more conventional instruments. I will then play and discuss examples which imitate insect noises and then move through to show you other examples which employ insect motifs but whose sounds are somewhat more ambiguous - the music may or may not really be about insects. I will end with a full circle, opposite example from the one that I began with by playing you an anthropomorphic example of an insect singing in a human way. My selections will come from classical, folk, blues/rock, and vaudevillean/theatrical traditions of music and I shall begin and end with the sound of crickets.

## Insects and Music

### Eternal Caravan of Reincarnation [Santana]

Santana is a rock band known for their South American musical roots. The band has been playing to audiences since the 1970s. In this track [from the album 'Caravanserai'] we hear a full 30 seconds introduction using the cheeping sounds of crickets. The cricket legs rub in unison with several groups making those sounds together as they do in nature. Without human music the lonely sounds of the crickets convey nightfall or darkness. The sound also paradoxically conveys silence or the quietness of dusk.

After this unaccompanied 30 seconds of cricket sounds the next one minute on the track is joined by a lone clarinet beginning its tune mournfully and slowly. The crickets by now have their own rhythm going and there is now also a discernible 'beat' appearing. A minute and a half into the track and we are joined by a bass and organ also, at first, deep and mournful, but then later quickening their pace and becoming literally more lively. Bells and cymbals join in and this creates both mystery and yet more liveliness. By now the cricket sounds have departed. The music breaks into a Latin rhythm and blues melody which eventually fades away to end the track.

The interesting thing about the pattern of music is how crickets are used here to symbolise not only the end of the day but also an individual life. The mournful clarinet and bass create a slumbering sound while the later parts of the piece attempt a musical portrayal of re-awakening, of re-emergence, or of rebirth of the soul, and hence lending support to the titled reference to reincarnation.

The sound of the crickets are employed as *music in themselves*. The sound of insects IS the music here. And this music can create ambient moods in the service of contemplating life itself, its purpose, perhaps even our individual destiny. Other music dispenses with using the real sounds of insects and settles, instead, for imitating those sounds with human instruments.

### Flight of the Bumble Bee [Rimsky-Korsokov: played by Julian Lloyd-Webber].

This piece is an outright attempt at mimicry. It attempts to recreate the sound of a bumble bee - the impression of its bumbling, the noise of its wings. This reminds us of so many other sounds of small winged insects - the mosquito, housefly or blowfly. These are the winged insects that are small but large enough for human ears to hear the vibration of their wings. The sound of flight is not however created by merely imitating the droning sound of quick wings. Listen again. The piece only runs for one minute twelve seconds so you will need to listen repeatedly if you are too pick up Rimsky-Korsokov's cleverness.

The composer uses tonal variation - a combination of high notes and lower bass notes which gives the lead instrument [in this case the cello] and the listener the impression of height and distance. High and low notes for high and low heights and soft and loud can give the impression of near and far. An erratic sense of movement is also created by the staccato effect [quick, short notes] of the cello's performance and the pizzicato of the violins [the plucking of strings noise] in the background of the piece.

Although the cello performance conveys the body and wings of the bee in flight it is the background instruments which help convey a sense of place, of location. The bee dives here, and then there, here on a flower but no, moving on to another, and so on. The almost nervous darting and erratic jumping from place to place is conveyed by the background music. So the foreground cello music is the bee. And the background orchestral support is the flight plan and detail. Both work on the unconscious mind of the listener to create the overall literalist portrayal of a bee in flight.



The Flight of the Bumble Bee is perhaps the most famous of all the short aural-visual pieces in classical music. It is certainly the most popular of that genre. Other pieces are less successful or less ambitious in their attempts to be taken so literally. These other pieces aim for a quality of likeness to achieve other musical aims. Literalist mimicry is not one of those aims. Let's look at some of these less obvious portrayals of insects.

#### The Butterfly [Orison].

Orison is a group of modern musicians devoted to composing and performing a mixture of classical, Celtic-folk, and jazz instrumental music. They record under the Narada label, which is one of the more famous of recording labels [along with the Windham Hill label] for these kinds of musicians and compositions. The Butterfly provides listeners with a vision not based on a mimicry of sound but a sound picture nevertheless. This sound picture relies more on the lead instrument conveying movement through musical timing.

First the piece begins lazily, as if the butterfly slowly ascends from its cool resting place where it was perhaps warming its wings in the morning sun. Note how the tempo of the piece slowly but gradually becomes more up-beat, conveying height but also gliding in some of the more sustained notes. Unlike the Flight of the Bumble Bee where, no doubt, the score is littered with quavers, semi-quavers and crotchets [notes with short or very short beats] this piece about a butterfly has minims and dotted minims for sure. There also seems to be a timing change in this piece as the pace picks up about a third of the way through. Timing changes are popular with Orison.

There is also a lick of laziness in many of the notes even in the middle and toward the end of the piece. This is no small butterfly. The choice of lead instrument is also indicative of this contemplation over size. The oboe suggests a larger rather than smaller creature. A small butterfly might have a higher register instrument to do its work - a violin perhaps or a guitar played in a high key. An oboe or a cello played in low to middle keys might indicate something larger [I realise that our version of the Flight of the Bumble Bee employed the cello but it did so in a high key. I know many people who, not knowing their instruments, thought the version WAS a violin version!]

So here we see that instruments themselves may indicate size. It would be unlikely that versions of the Flight of the Bumble Bee would be performed by brass instruments, particularly say, the tuba - unless you wanted to convey an overweight bumble bee! Strings are perfect for small creatures like a bee. A larger creature such as a butterfly can be conveyed well by the sound of wood and wind instruments such as oboe, flutes, recorders, or guitars.

#### March of the Grasshoppers [Prokofiev].

Prokofiev employs a piano to create the impression of movement. In some ways, the piano is its own orchestra - it is the master instrument. Note how the piano piece creates that bouncy and awkward sense of movement all by itself without backing instruments. There is no background, no backbeat, no counterpoint or complementary movements within or without the piece. Yet, one can almost picture the grasshoppers faltering movements on the surface of a farmer's field of crops.

The cost of this however is that the piano piece relies solely on a sense of movement. Rimsky-Korsokov uses mimicry and some orchestral support to achieve the closest imitation of the actual insect. In other words, you do not have to know what the piece is called to automatically think of a bee when hearing Rimsky-Korsokov's piece. Orison, you may recall, employs the musical metaphor of movement but is supported in this task by other instruments. The lone piano piece of Prokofiev depends much more heavily, in a one-dimensional kind of way, on the *a priori* knowledge of the listener that the piece is titled 'March of the Grasshoppers'.

For if I told you that Prokofiev's piece was in fact titled 'The Golliwogs Cake Walk' I think many of you would find this image equally acceptable, especially if you didn't already know that title belonged to a famous Debussy piece.

#### The Ecstasy of Dancing Fleas (Penguin Cafe Orchestra).

Penguin Cafe Orchestra provides us further evidence for a musical tradition of associating string instruments with small insects, in this case, fleas. Thrown into the melee of guitar, ukulele and bass guitar, the combination of pizzicato [plucking strings] and sliding movements gives the music a decidedly South American or at least a South of the Border-cum-Mexican [as the Citizens of the USA are fond of remarking] flavour. The rhythm is bluesy, maybe a little Latin. The odd high pitched twang at the beginning of the piece introduces an element of surprise, humour, or even the impression of a wire spring - lending itself, of course, to images of jumping and leaping.

But after what can only be considered an introduction which pays only lip service to the initial flea imagery, the piece settles into a prolonged four minutes of bluesy jam. Guitar twang and ukulele soon give way to bass guitar, shakers, bongos and cymbals. There is more than a Latin hint of La Cookaracha here but, of course, that means cockroach not flea. And that is, ironically, an important observation to make.

Like Prokofiev's piece about the March of Grasshoppers one has to believe in the metaphorical title to hold onto it during the music. I think the insect images in pieces like Prokofiev or Penguin Cafe Orchestra use insect imagery as departure points for their images of gaiety, relaxation, and playful distraction. Orison, Prokofiev, and Penguin Cafe Orchestra design their pieces to actually transcend their initial insect imagery so as to put you 'in the mood'. To some extent this is also true of Rimsky-Korsokov but that piece is more literalist. We are literally asked to dwell, albeit in a relaxed and playful way, about a bee. It is a meditation and a positive one.

Each of these insect pieces are from different musical traditions - classical, folk, pop, or blues, and whether literalist or metaphorically, each chooses to use the insect as a relaxing playful image. For once in human cultural activity insects are portrayed as a relaxant! This is only sometimes the case in art, as we have seen in the 1997 presidential address, and rarely in entomological history itself as we have seen in the 1998 presidential address. Only in the musical portrayal of insects could the idea of bees flying, fleas a-leaping, or grasshoppers marching seem to be a relaxing thought to contemplate.

### When Wish Upon a Star [ Edwards/Washington, Harline, Disney]

The pleasure of insects sounds reaches its greatest symbolic height in Walt Disney's "When You Wish Upon a Star". Now this talk tonight does not include insect songs [so, for example, I am not intending to discuss the opera *Madam Butterfly* and similar traditions]. However, what impresses me about this one song is (1) it's world-wide fame (2) it's universal appeal to children and adults and (3) the fact that no-one seems to mind that it is a lullaby sung by a cricket - Jiminy Cricket no less! Let's listen to that piece now.

The song was performed by Cliff Edwards as a piece which featured in the Disney film 'Pinocchio' and earned an Oscar for Best Song at the 1941 Academy Awards (Fisher u.d. p.14). The song was also later to become the closing song for the weekly Disneyland show 'The Magic Kingdom'. What can we say about this song musically? And let me put this another way before we listen to the music again. How does the music transform a singing cricket into something of a bedside fairy for children's dreams?

First, the opening bars of music in the introduction begin with the soothing strains of harp music. Secondly, this is followed by quick child-like melodies using violins and recorders. Thirdly, a choir supports the main vocals, the style being deliberately and overtly angelic. The music has every feature of being a 'mood' piece and fourthly there is the voice of Cliff Edwards himself - smooth, warm, and a mesmerising, lilting tenor if there ever was one. Finally, the words of the music emphasise dream states - 'when your heart is in your dream/no requirement is too extreme'; 'when you wish upon a star/ as dreamers do'; 'when you wish upon a star/ your dreams come true'.

As I mentioned at the start of this address, the cricket is often associated with the night or nightfall and nightfall, of course, is associated with stars, sleep and dreams. And so the aural and imaginal setting for one of the Western World's greatest and most loved lullabies is thereby complete - and all perfectly performed BY A CRICKET!!

### **Some Concluding Remarks**

Let me summarise our observations so far (see table one):

Table 1

#### **The Musical Portrayal of Insects**

1. Insect sounds as music (Santana)
2. Instrumental imitations of insect sounds (Rimsky-Korsokov)
3. Instrumental imitations of insect movements (Prokofiev)
4. Poetic musical symbolism of insects (Orson, Penguin Cafe Orch)
5. Insects as human-like performers of music (Disney)

If the rhythmic sounds of bee wings, cricket legs or cicada calls can in themselves be classified as a basic form of music then we must frankly admit that insects are, almost by definition, music itself. If tonal variation in those sounds - the up and down and close and far arrangement of those sounds - can be viewed as literally a musical arrangement - then we must frankly admit that some insect music resembles an orchestra. If that 'orchestral arrangement', that pattern of



music, complements or creates the counterpoint to other music - the wind through the trees or the sound of bird calls - we can understand the common poetic meaning in the phrase "the symphony of Life". It is a literal meaning!

And here may lie a very interesting paradox. Maybe it is not insects that resemble music but rather music that resembles insects because, in a very fundamental sense, music historically resembles and imitates the sounds of nature itself. Human music is a reflection of the natural music of the world - the insects, the wind, the brooks and rivers, the movement of the earth and mountains, the birds and other animal calls, and the cry of the human infant.

As some people used to say in the 1950's and 1960's about popular rock n roll music: If you want to listen to REAL music try the classics. To them we might say: if you want to listen to the ORIGINAL 'real' music - try mother nature.

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## Butterfly Observations in Southeast Asia Including two Potentially new Records for Borneo

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### Difficulties observing butterflies

Use of a hand-held video camera for identification is a new tool I am currently testing in Southeast Asia. It is useful in parks, woodlands and open forest, but has proved awkward within denser vegetation and at remote sites. In jungle, adults can be difficult to approach and are easily disturbed by moving vegetation. There is often no time to manually focus, and the density of closer foliage plays havoc with auto focusing on a small, often moving insect. The filtered light and deep shade can also affect color balance. Here traditional capture-examination methods seem essential for close up observations. Nevertheless with powerful digital zoom (250x), identifications to genus are sometimes possible for large adults even in the jungle canopy (at about 40 metres)!

There were often other problems too. In a jungle clearing near Sepilok (Sabah), the lens fogged repeatedly preventing even a photograph of a superb, large *Idea* species. Added to this, whilst traversing partially flooded riparian habitat adjacent the Kinabatangan River, an unexpected downpour posed an immediate threat to the electronics, let alone the potential projectile effect which nearly occurred from a minor slip on mud. And, at an Iban village near the Skrang River in Sarawak the generators were turned off at 10pm before I had completed charging the battery for the following day!

In spite of the difficulties, using frame by frame replay many conspicuous species could be later identified with reasonable certainty especially in areas where the fauna is well illustrated.

### New Records

During May and June 1999, I observed many butterflies at various locations in the Malay states of Sabah and Sarawak in the island of Borneo. Two species encountered, *Papilio demoleus* L. and *Apaturina erminea* Cramer, seemingly represent new records for the island.

#### *Papilio demoleus*

On 11 June, en route from Kuching to the Skrang River in inland southern Sarawak, I stopped for lunch at a small montane farming village in the Lachau region either close to or at Serian. Here, at 13:30 hours, two worn males of *Papilio demoleus* were patrolling territories in open grassy woodland. They briefly challenged each other along a vehicle track near a dusty car park close to human habitations. Their habitat was very similar to that utilised in Australia and the Philippines (Tsukada & Nishiyama 1982).

*P. demoleus* is widespread in Southeast Asia. The distribution map provided by Tsukada and Nishiyama (1982) indicates its absence from Borneo. These authors reported a natural enlargement of its range since 1967, particularly in the Philippine Islands, and it has since (prior to 1982) reached Talaud, Sangir and Sula as well as the Japanese Island of Yonakuni. They suggested the possibility of further range extension to Borneo, Celebes and Molucca. The species has probably extended into Borneo via Mindanao or perhaps Palawan.

*P. demoleus* has no sibling species with which it could be confused, and is one with which I have considerable field experience. Earlier, in April, I found it at Mae Klang Waterfall in Doi Inthanon National Park in northern Thailand. Here, males were videoed feeding at pale purple flowers in a jungle clearing and communally mud-puddling with other males of *Catopsilia pomona* and *C. pyranthe* and *Eurema brigitta* in rainforest/woodland ecotone. I have also seen adults flying in urban areas near Marcos Bridge at Cagayan de Oro City in Mindanao (Philippines). Most of my

experience with the species, however, has been in mainland Australia where I have encountered adults at 35 localities in WA, NT, Qld, NSW and Vic.

I did not video the patrolling males in Sarawak as I was confident of their identity; had I recognised their distributional significance I probably would have attempted this. Nevertheless, I recall that conditions were very hot and dry, and standing in the midday equatorial sunshine rapidly left me feeling exhausted, perhaps, exacerbated by residual weakness from a recent dose of glandular fever. Instead, the observation was noted in my diary along with a female of *Junonia orithya* (videoed), a single *Eurema* sp. and a male of *Papilio memnon*, glimpsed flying in a remnant vine thicket nearby.

In spite of its large world-distribution, the butterfly is historically absent from some of the islands in the vicinity of the Wallace and Weber lines where, presumably, two ecological forms meet. The larvae of the Southeast Asian forms are associated with *Citrus* (Rutaceae) whereas the Australia population predominantly uses *Psoralea* (Fabaceae), an herb that grows in woodland.

(?) *Apaturina erminea*

On 31 May during mid afternoon at Poring Hot Springs (in Kinabalu National Park) in Sabah, I observed a large nymphalid with a central brilliant blue area and broad yellow, post median band on the forewings. It flew rapidly, low down (about 2m high), in an open area near closed forest before disappearing from sight. The observation was noted in my diary along with a female of *Trogonoptera brookiana brookiana* seen feeding nearby at an emergent flowering tree in the canopy, a male *Arhopala* sp. and a male *Anthera* sp. (similar to *A. licates*).

A second adult was seen on 5 June during mid afternoon at Lambir Hills National Park near Miri (Sarawak). The adult flew very rapidly, about 2m above ground, from the shore across water towards the base of Latak Waterfall. The iridescent blue central area and yellow stripes were conspicuous in flight; the species was seen at close range (within about 4m) and at eye level. Again the adult could not be photographed. Other recognised species (videoed) in closed forest at Lambir Hills close to where the species was seen included several males of *Trogonoptera brookiana* patrolling and landing on sandy areas beside a stream, *Terinos clarissa*, several *Bassorona dunya*, *Parantica aglea*, *Ypthima* (?) *fasciata* and a remarkable looking adult which might be the skipper, *Ancistroides gemifera*(?). In the jungle, at this site and in Sabah conditions were sunny, hot and humid.

I did not identify the adults as leafwings, their flight seemed more like a *Polyura* or *Charaxes* than a *Doleschallia* (Australian genera I am familiar with). Apart from *Kallima buxtoni*, a large blue leafwing with an orange stripe, there are no other similarly colored nymphalids recorded from Borneo (D'Abrera 1985). Instead, in wing shape and markings, the black, blue and yellow adults closely resembled *Apaturina erminea*. This species occurs west to Buru in Malaku (D'Abrera 1971) and geographically, a blue variety rather than the more greenish forms seen further east in its range (D'Abrera 1971) would be expected in Borneo, and agrees with the observed color.

Unfortunately, I have no field experience with this species in northern Australia (where it is very rare) with which to compare its flight behavior and so give a measure of confidence to this report. In case *A. erminea* occurs in Borneo I encourage visiting collectors to watch for this species in order to substantiate its presence in the island.

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Fig.1. *Papilio demoleus demoleus* L. sipping water at Mae Klang Waterfall, Doi Inthanon National Park, Thailand (April 1999).

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The *Victorian Entomologist* is printed at MOORE Business Systems, Shell House Lower Lobby, 1 Spring Street, Melbourne, Victoria, 3000.

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## DIARY OF COMING EVENTS

### **Friday 10 December General Meeting - Members Night**

**Members will give short talks and slide presentations.**

**Please bring a plate. Tea and Coffee will be provided**

At the Society's meeting room at La Trobe University, 2nd Floor, Room 2.29, 215 Franklin  
Street, Melbourne (Opposite the Queen Victoria Market near Queen Street)  
Melway reference Map 2F B1

### **Friday 18 February General Meeting**

**Neil Archbold will present a talk on:**

**'The fossil history of insects - evolution, gaps in the record and extinctions'**

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